

Vol. 6

No. 3

BULLETIN  
OF THE  
CHICAGO ACADEMY OF SCIENCES

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MAMMALS OF ILLINOIS  
AN ANNOTATED CHECK LIST WITH KEYS AND BIBLIOGRAPHY

BY

WALTER L. NECKER

AND

DONALD M. HATFIELD



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*The Bulletin of the Chicago Academy of Sciences* was initiated in 1883 and volumes 1 to 4 were published prior to June, 1913. During the following twenty-year period it was not issued. Volumes 1, 2, and 4 contain technical or semi-technical papers on various subjects in the natural sciences. Volume 3 contains museum reports, descriptions of museum exhibits, and announcements.

Publication of the *Bulletin* was resumed in 1934 with volume 5 in the present format. It is now regarded as an outlet for short to moderate-sized original papers on natural history, in its broad sense, by members of the museum staff, members of the Academy, and for papers by other authors which are based in considerable part upon the collections of the Academy. It is edited by the Director of the Museum with the assistance of a committee from the Board of Scientific Governors. The separate numbers are issued at irregular intervals and distributed to libraries and scientific organizations, and to specialists with whom the Academy maintains exchanges. A reserve is set aside for future need as exchanges and the remainder of the edition offered for sale at a nominal price. When a sufficient number of pages have been printed to form a volume of convenient size, a title page, table of contents, and index are supplied to libraries and institutions which receive the entire series.

Howard K. Gloyd, Director of the Museum

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WALTER L. NECKER AND DONALD M. HATFIELD\*

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Thirty years have elapsed since the last list of the mammals of Illinois was published. Since that time there have been numerous additional specimens collected and many changes in the nomenclature of these animals. Now that an active interest in the natural history of the state is again being developed, we feel that it is an opportune time to record the present extent of our knowledge of this fauna, primarily to point out the many gaps and problems confronting mammalogy in Illinois. With a view to helping and encouraging prospective students we have included a key to the species, a key to the skulls of genera, an annotated list of species, and a bibliography of mammals of the state. Included with the keys are figures to illustrate some of the less commonly used terms. The list of species is annotated with references to original

\* Interested in a comparison of the distribution of reptiles and of mammals in the state, Mr. Necker some years ago began to compile geographic data on the mammals of Illinois. In addition to making a survey of the literature, he examined specimens from the state in the collections of several museums as well as those in the collection of the Academy. The data thus assembled are thought likely to be sufficiently helpful to students of the natural history of Illinois to warrant publication. In the hope of increasing the potential usefulness of this paper, Dr. Hatfield has prepared keys for the identification of the species and of the skulls of the genera; he has also examined pertinent museum material, assisted in the preparation of the manuscript, and supervised the preparation of the drawings which are the work of Oswald Boll of the Museum Extension Aid Project (No. 30185) of the Work Projects Administration.---*Ed.*

descriptions and to more extensive articles on the natural history of the animal, known locality records, and in some instances problems of particular interest and importance.

The work is by no means to be considered finished; it is hoped that this paper may furnish a basis for more intensive investigation. It is doubtful, in fact, whether we may ever expect to have a complete knowledge of the mammals of any area. The reasons for this are several. In the first place, animals undergo changes in distribution through extension or contraction of range. These changes may be due to either of two principal influences: changes of habitat resulting from "natural" or from human causes; and changes originating within the animal itself. It is because of these continual changes that it would be practically impossible to cover the state regularly and thoroughly enough to present a completely accurate current picture of the status of the mammals. Check lists are rarely more than reports of progress.

In addition to reviewing the available literature, we have examined specimens from the following institutions which contain the bulk of the Illinois material: U. S. Bureau of Biological Survey (now the Section of Biological Surveys); Chicago Academy of Sciences; Field Museum of Natural History; Museum of Zoology, University of Michigan; Northwestern University; and the United States National Museum. In addition, we have learned by correspondence of specimens in the following collections: Illinois State Natural History Survey, Urbana; Museum of Natural and Social Sciences, Southern Illinois Normal University, Carbondale; and the University of Illinois, Urbana.

We wish to express our appreciation to the following curators who allowed us to examine specimens in their care: Dr. Remington Kellogg and H. Harold Shamel of the U. S. National Museum; Dr. Hartley H. T. Jackson of the Biological Survey; Dr. W. H. Burt of the University of Michigan; Colin Campbell Sanborn of the Field Museum of Natural History; and Dr. Orlando Park of Northwestern University. We wish also to thank Tappan Gregory, Honorary Curator of Mammals of the Chicago Academy of Sciences, for permission to examine material in his private collection.

Our especial thanks go to Dr. C. O. Mohr, of the Illinois State Natural History Survey, Fred R. Cagle, of Southern Illinois Normal University, and E. J. Koestner, of the University of Illinois. Each of these informed us by letter of the specimens in collections at his institution. Mr. Koestner, who inaugurated a study of the mammals of Illinois several years ago, has been kind enough to allow us to include the bulk of his accumulated information here. To him we are indebted not

only for records from the collection of the University of Illinois, but also from his private collection, from that of Jane C. Dirks of the University of Illinois, from the collection of R. Magoon Barnes, Lacon, Illinois, from the Museum of Vertebrate Zoology, University of California (*vide* E. R. Hall), and from the Academy of Natural Sciences of Philadelphia (*vide* F. A. Ulmer).

#### HISTORICAL SUMMARY

The first important work on mammals of Illinois was that of Kennicott, published as several papers in the Patent Office Reports (1856-8). Fifty years later, Cory's *Mammals of Illinois and Wisconsin* was published, but is now out-of-date. At present, the most useful descriptive work on mammals of this general area is Lyon's *Mammals of Indiana*. Among local lists, Wood's *Mammals of Champaign County* and Gregory's *Mammals of the Chicago Region* stand virtually alone. In addition to the above works, there are numerous papers in which mention is made of specimens from Illinois; these are listed in the bibliography, which is probably far from complete, but does, we hope, list the more important contributions.

During the middle of the last century, the pioneer collectors of mammals, as well as of most natural history objects in Illinois, were Robert Kennicott and Friedrich Brendel. Their field work, although by no means restricted, centered mainly around their homes in West Northfield and Peoria, respectively. After an interval of nearly fifty years, during which only casual collecting was done, Edmund Heller gathered numerous specimens in the southern tip of the state, and Robert Ridgway sent many specimens, primarily from Richland County, to the National Museum. After another interval, the present generation of collectors became active; among the more prominent of these are: E. V. Komarek, J. J. Mooney, C. C. Sanborn, and D. A. Spencer. None of these excepting Sanborn is still actively collecting in the state, although there is probably a considerable amount of cursory collecting of which we have no record.

#### KEYS

The elusive manner and the nocturnal habit of most of our common mammals has in large part been responsible for the general lack of knowledge regarding them. In studying their habits and general biology, a primary step is the accurate recognition of the species concerned. To aid in this identification the following keys are presented.

The general key to species has been constructed primarily for use with fresh mammals in hand, although it may also be applied to study skins if skulls are available at the same time. Reference either to the figures or to the glossary at the end of the keys should explain or define terms not familiar. Methods of measuring mammals are indicated in Figure 1.

The key to skulls of genera is included principally for the identification of skulls picked up at random out-of-doors, or of skulls found in connection with the food remains of various predatory species; in other words, for the identification of skulls for which no skin or other part of the animal is available. Although the accompanying figure of a skull with the important parts labelled is of the carnivore type (Fig. 2), the terms apply equally well to rodent or other similar types.

In referring to the number of teeth of a mammal, it is customary to count those on one side only. Thus if, as under 7 in the skull key, the statement is made that there is one premolar above, we mean that there is one premolar on the upper jaw *on each side*. Also, the dental formula, or dentition, of a mammal refers only to the teeth occurring on one side of the upper and lower jaws. A dentition of  $\frac{3-1-4-2}{3-1-4-3}$  indicates the presence of 3 incisors above and 3 below, one canine above and one below, 4 premolars above and 4 below, and 2 molars above and 3 below. The total number of teeth is, of course, twice this number, or in this instance 42. The formula is always written in this order, from the front to the back.

We wish to call particular attention to the part the carnassials play in the recognition of the teeth in the Carnivora. Here the fourth premolar above ( $Pm^4$ ) and the first molar below ( $M_1$ ) always form the carnassials. If on the upper jaw of some carnivore such as the cat, there are but two premolars between the canine and the carnassial, it means that the first premolar has been lost in the evolutionary development of the animal, and that only premolars 2, 3 and 4 remain. It is generally true that premolars are lost from the front and molars are lost from the back.

To illustrate the use of the keys, let us assume that we have a chipmunk in hand. Starting in the general key to species with point number 1, we find that it does not fit here, so we proceed to 1a, under which it could be placed. Then to 2, but the front legs are not modified to serve as wings, so we go to 2a, which states that all mammals under it do not have the forelimbs modified to serve as wings. Then to 13, which is immediately under 2a. Here we find the terms *canine teeth* and *incisor*. Referring to Figure 2, showing the parts of the skull, we find that canine teeth are long tearing teeth, which are absent in our specimen;

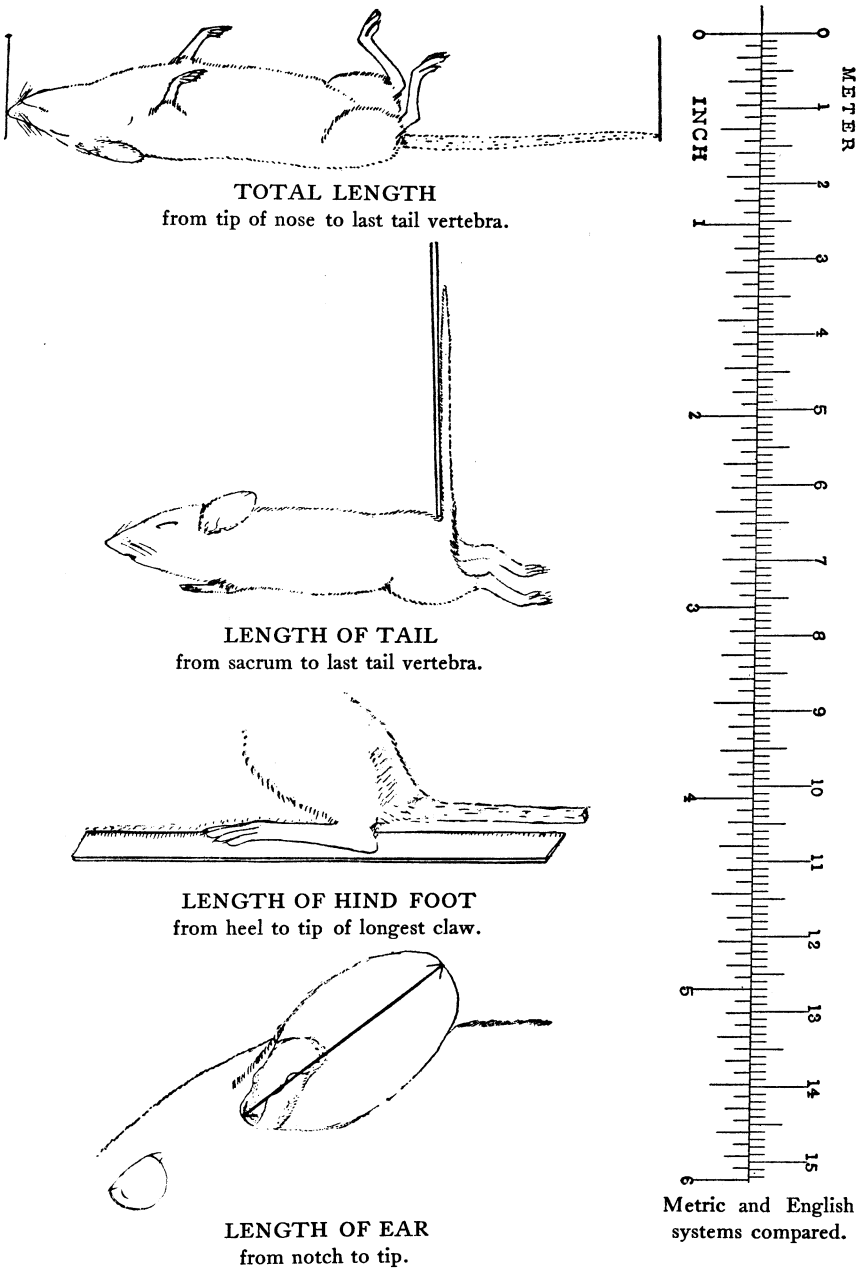


Fig. 1. Methods of measuring mammals.



also, there is only one incisor on the lower jaw, so we proceed to 13a. Following this same plan of choosing one of two alternatives, we arrive at point number 37, where we find "Back longitudinally striped." It is. Then, under 38, "Cheek teeth 4/4; back with 2 light stripes bordered with black.—*Tamias striatus* (Eastern Chipmunk)."

#### GENERAL KEY TO SPECIES

1. First toe of hind foot thumb-like and clawless; tail naked, scaly, and prehensile; teeth 50; total length of adults averaging 700 mm.—*Didelphis virginiana* (Virginia Opossum).
- 1a. First toe of hind foot never thumb-like; tail variable but not prehensile; teeth fewer than 50.
2. Forelimbs modified to serve as wings.
  3. Dorsal surface of interfemoral membrane furred at least on basal half (from base of tail, half way to tip).
  4. Underside of wing furred to wrist; base of thumb furred.
    5. Total length more than 120 mm.; general color grizzled brown.—*Lasiurus cinereus* (Hoary Bat).
    - 5a. Total length less than 120 mm.; general color ranging from bright rufous to yellowish-gray.—*Lasiurus borealis* (Red Bat).
  - 4a. Underside of wing not furred to wrist; base of thumb not furred; general color blackish-chocolate, often with silvery tips on many of hairs.—*Lasionycteris noctivagans* (Silver-haired Bat).
- 3a. Dorsal surface of interfemoral membrane naked except for scattered hairs, or furred only at extreme base.
  6. Ears relatively very long (around 30 mm.) and leaf-like.—*Corynorhinus rafinesquii* (Big-eared Bat).
  - 6a. Ears shorter, usually less than 20 mm. long.
    7. Fur same color at base as at tips.—*Myotis grisescens* (Gray Bat).
    - 7a. Fur darker at base than at tips.
      8. Total length usually more than 105 mm.; forearm more than 40 mm. long in adults.—*Eptesicus fuscus* (Big Brown Bat).
      - 8a. Total length less than 105 mm.; forearm less than 40 mm. long.

9. Ears extending conspicuously (3 to 4 mm.) beyond tip of nose when laid forward.—*Myotis keenii septentrionalis* (Big-eared Little Brown Bat).
- 9a. Ears not extending beyond tip of nose when laid forward.
10. One incisor above on each side.—*Nycticeius humeralis* (Rafinesque's Bat).
- 10a. Two incisors above on each side.
11. Forearm less than 36 mm. long; general color of back mottled yellowish-brown.—*Pipistrellus subflavus* (Georgian Bat).
- 11a. Forearm more than 36 mm. long; general color dull brown to coppery-brown.
12. Each hair of back banded in three zones (lower two-thirds slate-gray, followed by narrow band of light gray and finally a brown tip); foot slender, usually less than 8.5 mm. long; first toe less than 5 mm. long.—*Myotis sodalis* (Indiana Bat).
- 12a. Each hair of back banded in two zones; foot robust, usually more than 8.5 mm. long; first toe more than 5 mm. long.—*Myotis lucifugus* (Little Brown Bat).
- 2a. Forelimbs not modified to serve as wings.
13. Canine teeth present above; more than one incisor below.
14. Eyes and external ears but little developed; tail scantily haired; snout elongated and pointed; canine but little differentiated; carnassial not differentiated.
15. Forefoot nearly as broad as long; claws of forefoot compressed dorsoventrally.
16. Nostrils surrounded by a fringe of finger-like tentacles.—*Condylura cristata* (Star-nosed Mole).
- 16a. Nostrils not surrounded by a fringe of finger-like tentacles.—*Scalopus aquaticus* (Common Mole).
- 15a. Forefoot longer than broad; claws of forefoot compressed laterally.
17. Tail about one-fourth length of head and body.

- 18. Total length less than 100 mm.; hind foot less than 11 mm.; coloration brownish-gray.—*Cryptotis parva* (Least Shrew).
- 18a. Total length more than 100 mm.; hind foot more than 11 mm.; coloration slate-grayish.—*Blarina brevicauda* (Short-tailed Shrew).
- 17a. Tail at least one-half length of head and body.
- 19. Total length less than 85 mm.; three unicuspid teeth visible when skull is viewed from side.—*Microsorex hoyi* (Pigmy Shrew).
- 19a. Total length usually more than 85 mm.; at least four unicuspid teeth visible when skull is viewed from side.
- 20. Coloration reddish; third unicuspid smaller than fourth.—*Sorex longirostris* (Bachman's Shrew).
- 20a. Coloration brownish; third unicuspid not smaller than fourth.—*Sorex cinereus* (Cinereous Shrew).
- 14a. Eyes and external ears well-developed; tail well-haired; snout not greatly elongated; canine differentiated, long and prominent.
- 21. Hind foot with four claws.
- 22. Claws retractile; form cat-like.—*Lynx rufus* (Bobcat).
- 22a. Claws not retractile; form dog-like.
- 23. General color of upperparts gray; feet gray or tawny dorsally.
- 24. Pupil of eye round; hind foot more than 160 mm. long; skull more than 175 mm. long.—*Canis latrans* (Coyote).
- 24a. Pupil of eye elliptical; hind foot less than 160 mm. long; skull less than 175 mm. long.—*Urocyon cinereoargenteus* (Gray Fox).
- 23a. General color of upperparts reddish; feet black dorsally.—*Vulpes fulva* (Red Fox).
- 21a. Hind foot with five claws.
- 25. Entire sole of hind foot applied to ground in walking; carnassial but little developed; anal scent glands absent; tail fur annulated.—*Procyon lotor* (Raccoon).
- 25a. Entire sole of hind foot not applied to ground in walking; carnassial strongly developed; anal scent glands present.

- 26. Tail less than twice as long as hind foot.
- 27. Total length less than 500 mm.; form slender.—*Mustela rixosa* (Least Weasel).
- 27a. Total length more than 500 mm.; form robust, squat; claws on forefeet very large.—*Taxidea taxus* (Badger).
- 26a. Tail more than twice as long as hind foot.
- 28. Color black and white; underparts black.—*Mephitis mephitis* (Skunk).\*
- 28a. Color not black and white; underparts not black.
- 29. Conspicuous black tail-tip present; general body color tawny; total length less than 500 mm.—*Mustela frenata* (Long-tailed Weasel).
- 29a. No conspicuous black tail-tip present; general body color dark chestnut brown; total length more than 500 mm.—*Mustela vison* (Mink).
- 13a. No canine teeth present; diastema between molariform and incisor teeth; incisors large and chisel-shaped, never more than one below.
- 30. Hind legs greatly elongated, with tail shorter than hind foot; upper incisors 2, second one small and placed directly behind the first.
- 31. Total length of adults more than 500 mm.; ear, from notch, more than 60 mm. long; tail thinly haired.—*Sylvilagus aquaticus* (Swamp Rabbit).
- 31a. Total length of adults less than 500 mm.; ear, from notch, less than 60 mm. long; tail thickly haired.—*Sylvilagus floridanus* (Cottontail Rabbit).
- 30a. Hind legs long or short—if long, with tail longer than hind foot; one incisor above.
- 32. External cheek pouches present; claws on front feet much larger than those on rear feet; total length about 200 mm.—*Geomys bursarius* (Pocket Gopher).
- 32a. External cheek pouches absent; claws on front feet about same size as those on rear feet.
- 33. Tail broad (80 to 100 mm. wide), flat, scaly.—*Castor canadensis* (Beaver).
- 33a. Tail not broad and flat, but variable.
- 34. More than three cheek teeth on each side of lower jaw; tail bushy.

\*Specimens of skunks from Illinois had best be submitted to an experienced worker for positive identification; the status of the forms to be found in this area needs further clarification.

- 35. Fore and hind limbs connected by a loose fold of skin; fur brownish-gray and very soft; nocturnal, volant, arboreal.—*Glaucomys volans* (Flying Squirrel).
- 35a. Fore and hind limbs not connected by a loose fold of skin.
  - 36. Tail less than 30 per cent of total length; body robust, squat.—*Marmota monax* (Woodchuck, Groundhog).
  - 36a. Tail more than 30 per cent of total length.
    - 37. Back longitudinally striped.
    - 38. Cheek teeth  $4/4$ ; back with 2 light stripes bordered with black.—*Tamias striatus* (Chipmunk).
    - 38a. Cheek teeth  $5/4$ ; back with 6 light continuous stripes.—*Citellus tridecemlineatus* (Thirteen-lined Ground Squirrel).
    - 37a. Back not longitudinally striped.
      - 39. Total length less than 400 mm.
      - 40. Top of tail always markedly reddish; pronounced line of demarcation between color of back and color of belly.—*Tamiasciurus hudsonicus* (Red Squirrel).
      - 40a. Top of tail never markedly reddish; no pronounced line of demarcation between color of back and color of belly.—*Citellus franklinii* (Franklin's Ground Squirrel).
      - 39a. Total length more than 400 mm.
        - 41. Rufous below; cheek teeth  $4/4$ .—*Sciurus niger* (Fox Squirrel).
        - 41a. Grayish-white below; cheek teeth  $5/4$ .—*Sciurus carolinensis* (Gray Squirrel).
- 34a. Three cheek teeth in lower jaw; tail not bushy.
  - 42. Hind legs long and kangaroo-like; tail much longer than head and body; underparts buffy.—*Zapus hudsonius* (Jumping Mouse).
  - 42a. Hind legs not long and kangaroo-like.
    - 43. Tail less than three times as long as hind foot.
      - 44. Upper incisors grooved on front surface.—*Synaptomys cooperi* (Lemming Mouse).
      - 44a. Upper incisors not grooved on front surface.

- 45. Tail less than 25 mm. long.—*Pitymys pinetorum* (Pine Mouse).
- 45a. Tail more than 25 mm. long.
  - 46. Five plantar tubercles; tail sharply bi-colored, dark above and light below.—*Microtus ochrogaster* (Prairie Meadow Mouse).
  - 46a. Six plantar tubercles; tail not sharply bi-colored.—*Microtus pennsylvanicus* (Eastern Meadow Mouse).
- 43a. Tail more than three times as long as hind foot.
  - 47. Tail scaly and laterally compressed (rudder-shaped); toes of hind feet fringed with stiff bristles.—*Ondatra zibethicus* (Muskrat).
  - 47a. Tail not laterally compressed; toes of hind feet not fringed with bristles.
  - 48. Upper cheek teeth with tubercles arranged in three longitudinal rows.
    - 49. Hind foot less than 22 mm. long.—*Mus musculus* (House Mouse).
    - 49a. Hind foot more than 22 mm. long.
      - 50. Head and body longer than tail; upperparts brown; underparts grayish.—*Rattus norvegicus* (Norway Rat).
      - 50a. Head and body shorter than tail; upperparts blackish; underparts yellowish-white.—*Rattus rattus* (Black Rat).
  - 48a. Upper cheek teeth with tubercles arranged in two longitudinal rows or with prismatic triangles on cutting surface.
    - 51. Upper cheek teeth long-crowned, with prismatic triangles; total length more than 300 mm.—*Neotoma floridana* (Wood Rat).
    - 51a. Upper cheek teeth with tubercles; total length less than 300 mm.
      - 52. Total length more than 225 mm.; tail more than 100 mm. long; pelage hispid.—*Oryzomys palustris* (Rice Rat).
      - 52a. Total length less than 225 mm.; tail less than 100 mm. long.
        - 53. Tail less than 70 mm. long, sharply bi-colored, dark above and light below; with dorsal blackish band evident.—*Peromyscus maniculatus* (Prairie White-footed Mouse).
        - 53a. Tail almost always more than 70 mm. long, not sharply bi-colored.

54. Color golden-brown; ears same color as pelage of back.—*Peromyscus nuttalli* (Southern Golden Mouse).
- 54a. Color brown or grayish-brown (not golden brown); ears usually darker than pelage of back, often edged with white.
55. Ear less than 15 mm. long from notch to tip.—*Peromyscus leucopus* (Woodland White-footed Mouse).
- 55a. Ear more than 15 mm. long from notch to tip.—*Peromyscus gossypinus* (Cotton Mouse).
- 

### Guide to Figure 2

al - alisphenoid	m <sub>1</sub> - first lower molar
am - angle of mandible	n - nasal
bo - basioccipital	oc - occipital condyle
bsp - basisphenoid	or - orbit
c - canine	pa - parietal
ca - carnassials (Pm <sup>4</sup> and M <sub>1</sub> )	pl - palatine
cm - condyle of mandible	pm <sup>1</sup> - first upper premolar
cp - coronoid process	pm <sub>1</sub> - first lower premolar
eam - external auditory meatus	pmx - premaxillary
eo - exoccipital	pop - postorbital process
f - frontal	pp - paroccipital process
fm - foramen magnum	psp - presphenoid
i - incisors	pt - pterygoid
inc - incisive foramina	r - rostrum
inf - infraorbital foramen	sg - sagittal crest
ip - interparietal	so - supraoccipital
j - jugal	sq - squamosal
l - lacrimal	tb - tympanic or auditory bulla
mp - mastoid process	v - vomer
mx - maxillary	zma - zygomatic arch
m <sup>1</sup> - first upper molar	

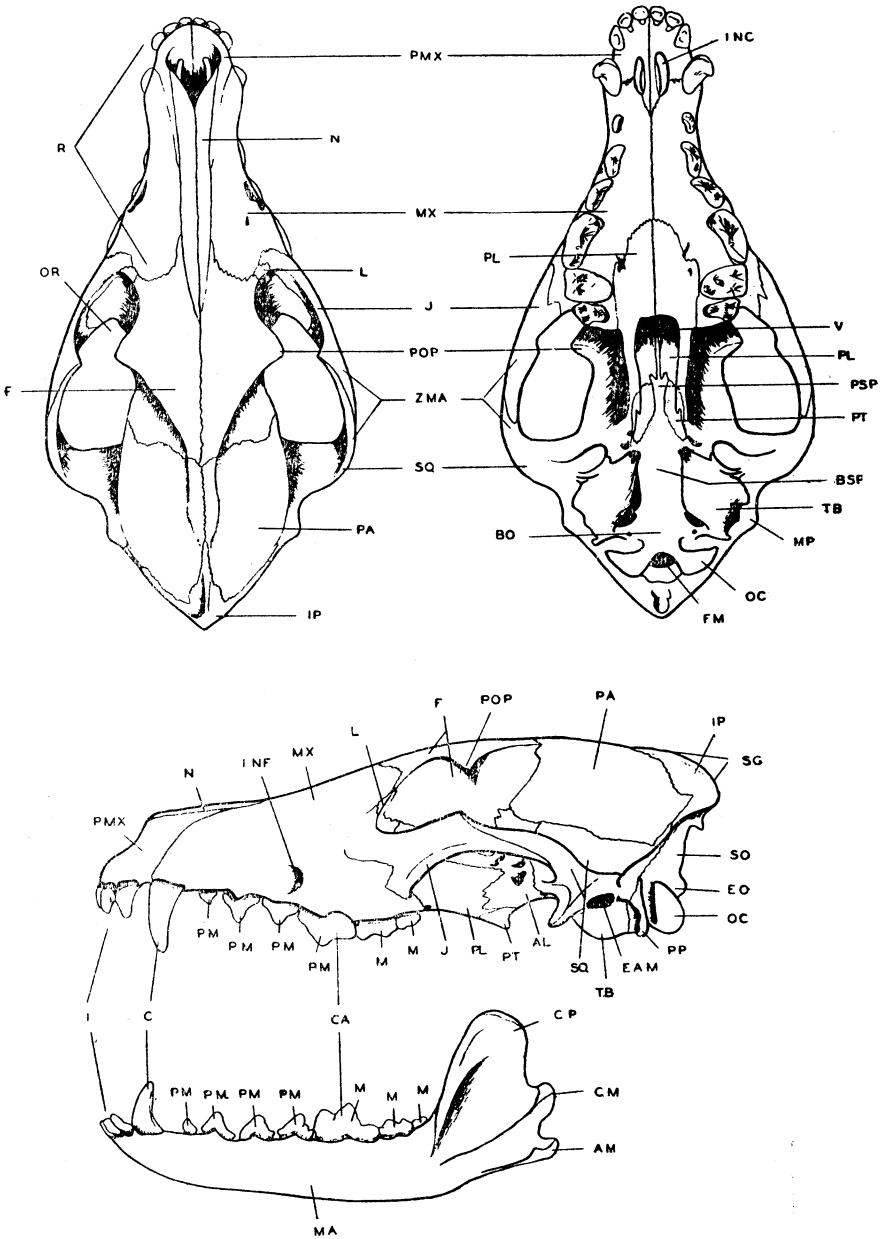


Fig. 2. Parts of a mammal skull.



## KEY TO SKULLS OF GENERA

1. Canines present above and usually below (on upper and lower jaws); no large diastema between incisors and premolars.
2.  $Pm^4$  and  $M_1$  not differentiated as carnassials.

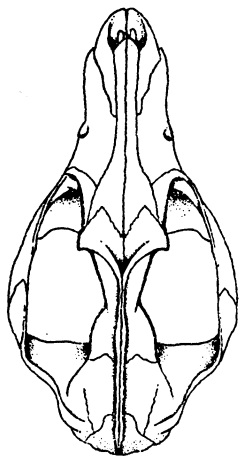


Fig. 3. Top view of skull of *Didelphis*. Note small braincase, a primitive character. (x 1/2).

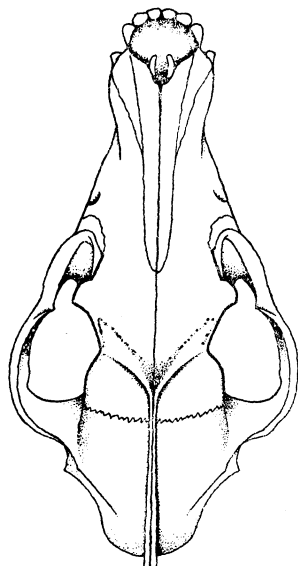


Fig. 4. Top view of skull of *Canis*. Note size of braincase; compare with Fig. 3. (x 1/3).

3. Braincase notably small (see Figs. 3 and 4); teeth 50 in number, dentition  $\frac{5-1-3-4}{4-1-3-4}$ .--DIDELPHIIDAE, *Didelphis* (see Fig. 9).
- 3a. Teeth fewer than 50.
4. Skull less than 50 mm. long.
5. Premaxillae not in contact with each other anteriorly (see Fig. 5).--VESPERTILIONIDAE. (Last three teeth above are molars; count as premolars those between canines and molars).
6. Cheek teeth (premolars and molars) 6/6, dentition  $\frac{2-1-3-3}{3-1-3-3}$ .--*Myotis*.
- 6a. Cheek teeth fewer than 6/6.
7. One premolar above.
8. Two incisors above, dentition  $\frac{2-1-1-3}{3-1-2-3}$ .--*Eptesicus*.
- 8a. One incisor above, dentition  $\frac{1-1-1-3}{3-1-2-3}$ .--*Nycticeius*.

- 7a. Two premolars above.
9. One incisor above, dentition  $\frac{1-1-2-3}{3-1-2-3}$ .—*Lasiurus*.
- 9a. Two incisors above.
10. Two premolars below, dentition  $\frac{2-1-2-3}{3-1-2-3}$ .—*Pipistrellus*.
- 10a. Three premolars below.
11. Width across canines five or more mm.; rostrum nearly as large as braincase when viewed from above; skull flat-topped; dentition  $\frac{2-1-2-3}{3-1-3-3}$ .—*Lasionycteris* (see Fig. 11).
- 11a. Width across canines less than five mm.; rostrum about one-half as large as braincase when viewed from above; skull arched, round-topped; dentition  $\frac{2-1-2-3}{3-1-3-3}$ .—*Corynorhinus*.

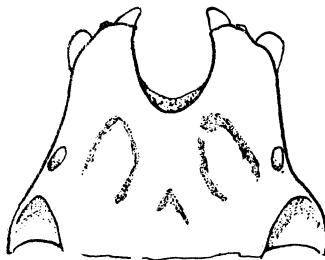


Fig. 5. Top view of rostrum of bat. Note premaxillae are not in contact anteriorly--there is a marked gap between them. (x 5).

- 5a. Premaxillae in contact with each other anteriorly.
12. Length of skull more than 30 mm.---TALPIDAE.
13. Mastoid breadth more than 45 per cent of skull length; second and third incisors small, not canine-like; dentition  $\frac{3-1-3-3}{2-0-3-3}$ .---*Scalopus* (see Fig. 10).
- 13a. Mastoid breadth less than 45 per cent of skull length; second incisor minute, third relatively large and canine-like; dentition  $\frac{3-1-4-3}{3-1-4-3}$ .---*Condylura*.
- 12a. Length of skull less than 30 mm.---SORICIDAE.
14. Dentition  $\frac{3-1-2-3}{1-1-1-3}$ ; first upper premolar minute, usually not brown-tipped.---*Cryptotis*.
- 14a. Dentition  $\frac{3-1-3-3}{1-1-1-3}$ .

15. Greatest width across tooth rows more than 7 mm.; mastoid breadth more than 11 mm.; greatest length of skull averaging 23 to 25 mm.—*Blarina*.
- 15a. Greatest width across tooth rows less than 7 mm.; mastoid breadth less than 11 mm.; greatest length of skull less than 20 mm.
16. Skull, when viewed from side, with 5 unicuspid teeth (immediately following first, bifurcate, incisor); maxillary tooth row more than 5 mm. long.—*Sorex* (see Fig. 6).
- 16a. Skull, when viewed from side, with 3 unicuspid teeth (immediately following first, bifurcate, incisor); maxillary tooth row less than 5 mm. long.—*Microsorex* (see Fig. 7).

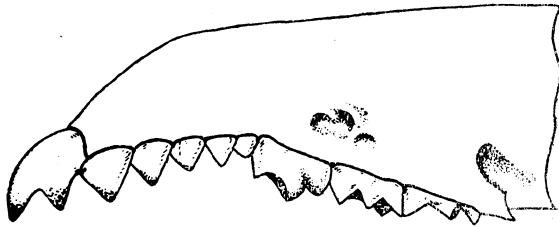


Fig. 6. Rostrum of *Sorex*, showing five unicuspid teeth. (x 8).



Fig. 7. Rostrum of *Microsorex*, showing three unicuspid teeth. (x 8).

- 4a. Skull more than 50 mm. long (averaging 100-125 mm.); canines large; dentition  $\frac{3-1-4-2}{3-1-4-2}$ .—PROCYONIDAE, *Procyon*.
- 2a.  $Pm^4$  and  $M_1$  differentiated as carnassials.
17. Fewer than 3 molars below.
18. Postorbital processes strongly developed; rostrum short; braincase rounded and truncate; one lower molar.—FELIDAE.
19. Premolars 2/2.—*Lynx*.
- 19a. Premolars 3/2.—*Felis*.

- 18a. Postorbital processes weakly developed; rostrum short, but braincase long; two lower molars.—MUSTELIDAE.
- 20. Posterior border of hard palate extending appreciably beyond posterior edges of last upper molars.
- 21. Greatest length more than 90 mm.; upper carnassial with two medial cusps; dentition  $\frac{3-1-3-1}{3-1-3-2}$ .—*Taxidea*.
- 21a. Greatest length less than 90 mm.; upper carnassial with one medial cusp; dentition  $\frac{3-1-3-1}{3-1-3-2}$ .—*Mustela*.
- 20a. Posterior border of hard palate not extending appreciably beyond posterior edges of last upper molars; dentition  $\frac{3-1-3-1}{3-1-3-2}$ .—*Mephitis*.
- 17a. Three molars below.—CANIDAE.
- 22. Temporal ridges prominent, beaded, U-shaped; Pm<sup>2</sup> approximately twice as long as wide; dentition  $\frac{3-1-4-2}{3-1-4-3}$ .—*Urocyon*.
- 22a. Temporal ridges less prominent, not beaded, V-shaped; Pm<sup>2</sup> approximately three times as long as wide; dentition  $\frac{3-1-4-2}{3-1-4-3}$ .
- 23. Greatest length about 150 mm.—*Vulpes*.
- 23a. Greatest length 200 mm. or more.—*Canis* (see Fig. 12).
- 1a. Canines absent above and below; diastema between incisors and molariform cheek teeth; one incisor in each of lower rami.
- 24. Incisors 2/1; cheek teeth 6/5.—LEPORIDAE, *Sylvilagus* (see Fig. 14).
- 24a. Incisors 1/1.
- 25. Cheek teeth 3/3.
- 26. Upper cheek teeth with tubercles on grinding surface arranged in three longitudinal rows.—MURIDAE.
- 27. Greatest length more than 30 mm.; heavy ridges over orbit and posteriorly on skull.—*Rattus*.
- 27a. Greatest length less than 30 mm.; no heavy ridges on skull.—*Mus*.
- 26a. Upper cheek teeth with tubercles arranged in but two longitudinal rows, or with prismatic loops or triangles on cutting surface.—CRICETIDAE.

- 28. Upper cheek teeth with tubercles in two longitudinal rows.
- 29. Greatest length 30 mm. or more; temporal ridges forming pronounced bead on sides of skull above orbits.--*Oryzomys*.
- 29a. Greatest length less than 30 mm.; temporal ridges not beaded.--*Peromyscus*.
- 28a. Upper cheek teeth without tubercles, but with loops or triangles of enamel surrounding lakes of dentine.
- 30. Upper incisors grooved longitudinally on front surface.--*Synaptomys*.
- 30a. Upper incisors not grooved.

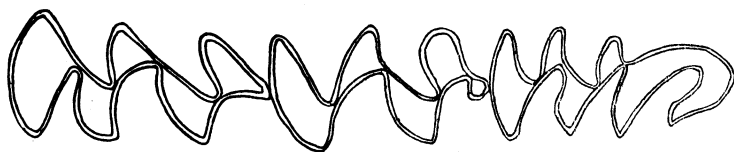
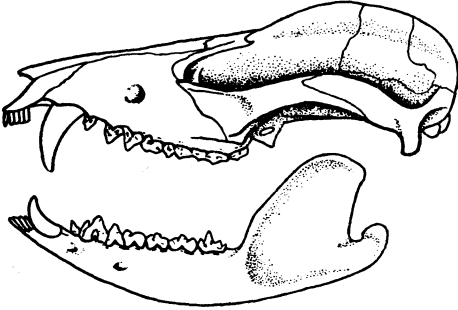


Fig. 8. Cutting surface of tooth row of *Microtus*. Note prismatic loops of enamel. (x 15).

- 31. Second upper molar with five loops.--*Microtus* (see Fig. 8).
- 31a. Second upper molar with fewer than five loops.
- 32. Second upper molar with three loops; greatest length approximately 45 mm.--*Neotoma*.
- 32a. Second upper molar with four loops.
- 33. Skull more than 50 mm. in length.--*Ondatra*.
- 33a. Skull less than 50 mm. in length.--*Pitymys*.
- 25a. Cheek teeth more than 3/3.
- 34. Upper incisors grooved longitudinally on front surface.

- 35. Cheek teeth 4/3.—ZAPODIDAE, *Zapus*.
- 35a. Cheek teeth 4/4.—GEOMYIDAE, *Geomys*.
- 34a. Upper incisors not grooved.
- 36. Cheek teeth 4/4.
  - 37. Cheek teeth long-crowned, growing from persistent pulp; skull more than 90 mm. long.—CASTORIDAE, *Castor* (see Fig. 13).
  - 37a. Cheek teeth not long-crowned; skull less than 90 mm. long.—SCIURIDAE.
    - 38. Greatest length of skull more than 55 mm.; length of upper cheek tooth row more than 10 mm.—*Sciurus*.
    - 38a. Greatest length less than 55 mm.; length of upper cheek tooth row less than 10 mm.
    - 39. Greatest length more than 45 mm.; rostrum about 10 mm. high at incisive foramina; upper cheek tooth rows about 7 mm. long.—*Tamiasciurus*.
    - 39a. Greatest length less than 45 mm.; rostrum about 7 mm. high at incisive foramina; upper cheek tooth rows about 6 mm. long.—*Tamias*.
- 36a. Cheek teeth 5/4.
  - 40. Postorbital processes extending more than 10 mm. out from skull.—*Marmota*.
  - 40a. Postorbital processes extending less than 10 mm. out from skull.
  - 41. Notch in zygomatic plate of maxillary opposite third cheek tooth above.
  - 42. Greatest length of skull more than 50 mm.; postero-medial edge of nasals more anterior than postero-lateral edge.—*Sciurus*.
  - 42a. Greatest length of skull less than 50 mm.; postero-lateral edge of nasals usually more anterior than postero-medial edge.—*Citellus*.
  - 41a. Notch in zygomatic plate of maxillary opposite second cheek tooth above.—*Glaucomys*.

## TYPES OF SKULLS OF MAMMALS



Note the large number of teeth, but little differentiated. The opossum is omnivorous, i. e., it will eat almost anything; it has no need for specialized dentition. Note also the high sagittal crest, for muscle attachment, and the relatively small braincase (see also Fig. 3).

Fig. 9. A marsupial, *Didelphis* (x 1/2)

Here the large number of teeth indicates "primitiveness" while their structure might be taken to indicate advanced specialization; note the sharp points. Note also the low rounded braincase, a character accompanying fossorial habit, and the long slender rostrum.

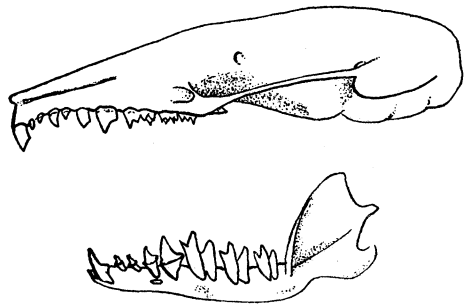
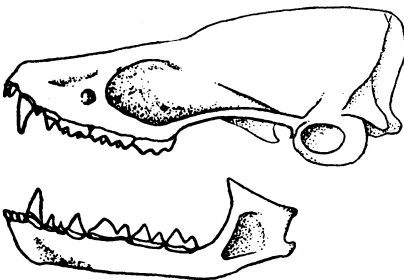
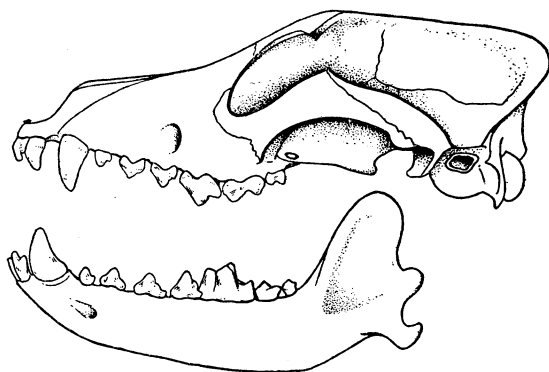


Fig. 10. An insectivore, *Scalopus* (x 1 1/2)



Bats may be regarded as flying insectivores, hence the similarity in tooth structure between the bats and the moles (compare with Fig. 10). The sharp-pointed teeth are efficient in the mastication of insects, while the shortness of the rostrum is of aid in capturing insects on the fly.

Fig. 11. A bat, *Lasionycteris* (x 3 1/2)



Note here the large carnassials (fourth pre-molar above and first molar below); these teeth come together with a shearing action comparable to that of a pair of scissors, and are useful in cutting through tendons and bone. The large canine teeth are adapted to a tearing or slashing action.

Fig. 12. A carnivore, *Canis* (x  $\frac{1}{3}$ )

The large, chisel-shaped incisors are characteristic of all rodents or gnawers. Enamel occurs only on the front surface of these teeth, hence the backs wear more rapidly and a sharp edge is assured. Canines are absent and the cheek teeth are grinders. In all rodents, the lower jaw moves not only up and down but also backward and forward.

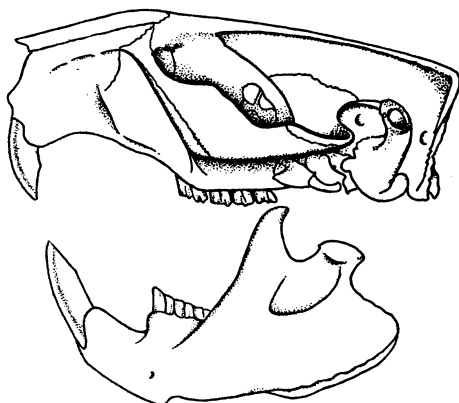
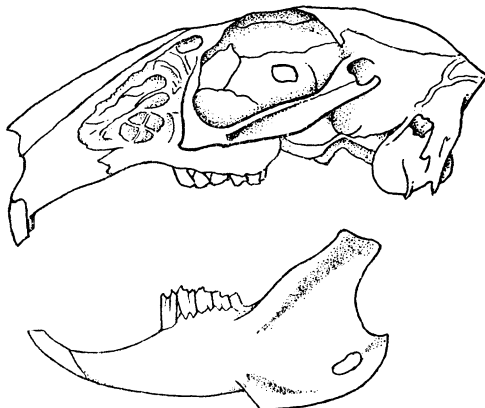


Fig. 13. A rodent, *Castor* (x  $\frac{1}{2}$ )



The outstanding recognition character here is the small second incisor occurring on the upper jaw. Its presence is one of the major factors responsible for placing the rabbits and pikas in an order separate from the Rodentia. Note the "lace-work" on the side of the rostrum.

Fig. 14. A lagomorph, *Sylvilagus* (x  $\frac{3}{4}$ )



## GLOSSARY

- Abdominal pouch* - Sac on external surface of abdomen of opossum, in which young are suckled.
- Anal scent glands* - Oil-secreting glands found on each side of anal opening in the Mustelidae.
- Annulated* - Ringed.
- Anteriorly* - Toward the front.
- Arboreal* - Tree-dwelling.
- Carnassials* - Scissor-like cutting teeth found in carnivores, comprising last premolar above and first molar below.
- Carnivore* - Member of the order Carnivora (meat-eaters).
- Cheek pouches* - Sacs on each side of face for carrying food.
- Cheek teeth* - Molars and premolars.
- Cusp* - Vertical projection on a tooth.
- Dentition* - An expression of the numbers and arrangement of teeth.
- Diastema* - Literally, a space; the space between the incisors and cheek teeth in rodents.
- Distal* - Away from the body (of limbs, tail, etc.).
- Dorsal* - Toward or of the upper surface.
- Hispid* - Of pelage, coarse or somewhat spiny.
- Interfemoral membrane* - In bats, skin connecting hind legs with tail.
- Lateral* - Away from the midline.
- Length of ear* - Distance from notch to tip.
- Length of hind foot* - From heel to tip of claw of longest toe.
- Length of skull* - Greatest antero-posterior length.
- Length of tail* - From posterior end of sacrum to end of last tail vertebra (see Fig. 1).
- Loops* - Enamel folds on grinding surface of cheek teeth in some rodents.
- Mastoid breadth* - Width of skull across mastoids.
- Medial* - Toward the midline.
- Molariform* - Molar-like.
- Pelage* - Hair or fur of a mammal.
- Plantar tubercles* - Projections on soles of feet.
- Prismatic triangles* - As loops, though with enamel sharply folded.
- Proximal* - Near the body (of limbs, tail, etc.).
- Rami* - Plural of ramus, the right or left half of the lower jaw.
- Total length* - Length from tip of nose to tip of last tail vertebra.
- Unicuspid* - Tooth having but one cusp or projection.
- Ventral* - Toward or of the lower surface.
- Volant* - Of gliding habit.

## ANNOTATED LIST OF SPECIES AND SUBSPECIES

Under an accepted scientific name we have listed the original description of the species; a reference to a paper dealing with its natural history; locality records; and in some instances, notes of particular problems concerning the species in Illinois.

The list of localities includes specimens in collections designated as follows:

- A Chicago Academy of Sciences
- B U. S. Biological Surveys
- D Jane Claire Dirks, University of Illinois
- F Field Museum of Natural History
- G Tappan Gregory, Voltz Road, Winnetka, Illinois
- I Illinois State Natural History Survey, Urbana, Illinois
- K E. J. Koestner, University of Illinois
- M Museum of Zoology of the University of Michigan
- MVZ Museum of Vertebrate Zoology, University of California
- N United States National Museum
- NU Northwestern University
- P Academy of Natural Sciences of Philadelphia
- R R. Magoon Barnes, Lacon, Illinois
- S Southern Illinois Normal University, Carbondale
- U University of Illinois, Champaign

Added to this are additional definite records from the literature if there is an indication that the author actually had specimens. The author's name is added in parentheses and the complete title and reference will be found in the bibliography at the end of this paper. This list includes only species at present found in a wild state in Illinois.

In order to facilitate the locating of place names mentioned in the text, we have included a county map of Illinois (Fig. 15).

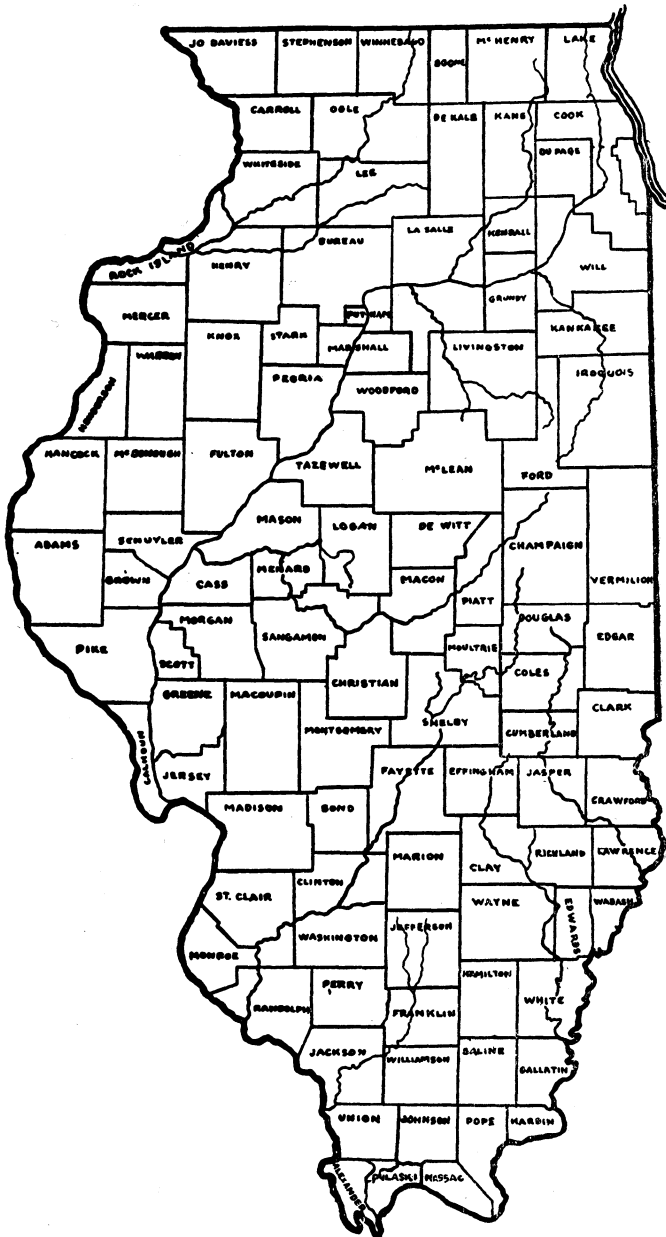


Fig. 15. County map of Illinois

## ORDER MARSUPIALIA, MARSUPIALS

## Family DIDELPHIIDAE, Opossums

***Didelphis virginiana virginiana* Kerr.** Virginia Opossum.*Didelphis virginiana* Kerr, 1792, Anim. Kingdom, p. 193.

Arthur, S. C., 1931, The fur animals of Louisiana, La. Dept. Cons., Bull., 18:77-85.

*Alexander*\*—Olive Branch, B, F. *Champaign*—Urbana, K, U. *Cook*—Chicago, NU; Hazel Crest, F; Northwood, G. *DuPage*—Glen Ellyn (Cory, Gregory); Naperville, F. *Ford*—Piper City, F, K. *Hancock*—Warsaw, N; West Frankfort, S. *Henry*—Kewanee, U. *Jasper*—Bogota, F. *Kane*—St. Charles, A. *Lake*—Deerfield, A; Highland Park, NU; Waukegan, A. *Marion*—Odin, F. *Mason*—Havana, K. *Ogle*—Oregon (Cory). *Union*—Wolf Lake, I. *Will*—Romeo, A. *Williamson*—Herrin, S.

## ORDER INSECTIVORA, INSECTIVORES

## Family TALPIDAE, Moles

***Scalopus aquaticus machrinus* Rafinesque.** Prairie Mole.*Talpa machrina* Rafinesque, 1832, Atlantic Journal, 1:61.

Arton, A. V., 1936, An ecological study of the mole, Jour. Mamm., 17:349-371.

*Adams*—Quincy (West). *Alexander*—Olive Branch, F. *Calhoun*—Brussels (West). *Cass*—Virginia (West). *Champaign*—Urbana, K, U. *Clay*—Flora (West, Wood). *Cook*—Argyle Park, P; Brookdale, F; Chicago, F; Evanston, A, M; Harvey, F. *Cowles*—Charleston (Hankinson, West). *Ford*—Piper City, K. *Hancock*—Hamilton, N; Warsaw, F, N. *Hardin*—Rosiclare, F. *Jackson*—Carbondale, S; Murphysboro (West). *Jersey*—Riehl St., B. *Johnson*—Ozark, F. *Jo Daviess*—Hanover (West). *Kane*—Geneva, A. *Knox*—Galesburg (West). *Logan*—Atlanta (West); Lincoln (West); Mt. Pulaski (West). *McLean*—Bloomington (West); Normal (West). *Madison*—Alton, N. *Marion*—Odin (West). *Marshall*—Lacon, R. *Macon*—Decatur (West). *Mason*—Havana (West); Quiver Tp. (West, Wood). *Morgan*—Jacksonville (West). *Peoria*—Peoria (Brendel). *Piatt*—Monticello (West); White Heath (West, Wood). *Richland*—Calhoun, M; Olney, F, N; Parkersburg, N. *Rock Island*—Milan (West). *St. Clair*—Belleville, N; Mascoutah (West); St. Clair (West). *Shelby*—Windsor (West). *Union*—Alto Pass, U. *Vermilion*—Danville (West). *Will*—Joliet, F. *Williamson*—Marion (West).

\*Names of counties are printed in italics.

**Condylura cristata** Linnaeus. Star-nosed Mole.

*Sorex cristatus* Linnaeus, 1758, Syst. Nat., ed. 10, p. 53.

Hamilton, W. J., Jr., 1931, Habits of the star-nosed mole, *Condylura cristata*, Jour. Mamm., 12:345-355.

*Champaign*—(Wood). *Hancock*—Warsaw (Cory).

This species, certainly easily recognizable, is found to all sides of Illinois; the sparsity of records within the state is inexplicable. Only Kennicott reports indirectly that it occurs in Edgar County.

## Family SORICIDAE, Shrews

**Sorex cinereus cinereus** Kerr. Cinereous Shrew.

*Sorex arcticus cinereus* Kerr, 1792, Anim. Kingdom, p. 206.

Jackson, H. H. T., 1928, A taxonomic review of the American long-tailed shrews, N. Amer. Fauna, 51:40.

*Cook*—Calumet City, A; Calumet Lake, A; Chicago, NU; Glencoe, A; Niles Center, A; River Forest, A; West Northfield, N. *Kane*—Bowes, A. *Kankakee*—St. Anne, K. *Lake*—Beach, A; Camp Logan, F; Deerfield, A, NU; Fox Lake, F, NU; Grayslake, A; Highland Park, A, MVZ; Lake Forest, F; Pistakee Bay, F; Prairie View, A; Zion City, A.

**Sorex longirostris longirostris** Bachman. Bachman's Shrew.

*Sorex longirostris* Bachman, 1837, Acad. Nat. Sci. Phila., Jour., 7:370.

Jackson, H. H. T., 1928, A taxonomic review of the American long-tailed shrews, N. Amer. Fauna, 51:85.

*Alexander*—Olive Branch, F. *Johnson*—Reevesville, F.

The record of Wood for Pistakee Bay, McHenry County, may be a misidentification.

**Blarina brevicauda carolinensis** Bachman. Southern Short-tailed Shrew.

*Sorex carolinensis* Bachman, 1837, Acad. Nat. Sci. Phila., Jour., 7:366.

Hamilton, W. J., Jr., 1929, Breeding habits of the short-tailed shrew, *Blarina brevicauda*, Jour. Mamm., 10:125.

*Alexander*—Olive Branch, B, F. *Hardin*—Rosiclare, F. *Johnson*—Reevesville, F. *Massac*—Metropolis, F. *Piatt*—Monticello, A; White Heath, D. *Pope*—Golconda, B, F. *Pulaski*—Wetaug, F. *Union*—Alto Pass, U; Wolf Lake, A, B, F.

The specimens from Monticello, Piatt County, appear to be intergrades between this race and *talpoides*. In certain characters of pelage and external size they agree with *carolinensis*; in skull characters they approach *talpoides*.

***Blarina brevicauda talpoides* Gapper. Northern Short-tailed Shrew.**

*Sorex talpoides* Gapper, 1830, Zool. Jour., 5:202.

Lyon, M. W., Jr., 1936, Mammals of Indiana, Amer. Midl. Nat., 17:47.

*Champaign*—Seymour, D; Urbana, U. *Cook*—Calumet City, A; Chicago, A, F; Des Plaines, N; Elk Grove, A; Elmwood Park, A; Forest View, A; Glencoe, A; Homewood, A, F; Indian Hill, G; Lemont, A; Mt. Clair, A; Northfield, N; New Lenox, A; Palos Park, A; Ravinia, MVZ; River Forest, A; Thatcher's Woods, A; West Northfield, N; Worth, F. *Coles*—Charleston (Hankinson). *De Kalb*—De Kalb, B; Somonauk, A. *DuPage*—Glen Ellyn (Gregory). *Ford*—Piper City, K. *Iroquois*—(Wood). *Jo Daviess*—Galena, F. *Kane*—Bowes, A; Sugar Grove, A. *Lake*—Camp Logan, F; Deerfield, A; Fox Lake, F; Grayslake, A; Highland Park, A, MVZ; Pistakee Lake, NU; Prairie View, A; Waukegan, A, N. *McHenry*—(Wood). *Marshall*—Lawn Ridge, M. *Ogle*—White Pines St. Park, U. *Warren*—(Wood).

***Microsorex hoyi hoyi* Baird. American Pigmy Shrew.**

*Sorex hoyi* Baird, 1857, Rep. Pacific R. R. Survey, 8: pt. 1, Mammals, p. 22.

Jackson, H. H. T., 1928, A taxonomic review of the American long-tailed shrews, N. Amer. Fauna, 51:202.

This species has not been definitely recorded from Illinois, but since its type locality is just a few miles north of our boundaries we include it because it is very apt to be found.

***Cryptotis parva* Say. Least Shrew.**

*Sorex parvus* Say, 1923, Long's Expedition Rocky Mts., 1:163.

Merriam, C. H., 1895, Revision of the shrews of the American genera *Blarina* and *Notiosorex*, N. Amer. Fauna, 10:17.

*Alexander*—Olive Branch, F. *Champaign*—Champaign (Mohr, 1935); Seymour, K; Urbana, K. *Coles*—Charleston (Cory, Hankinson). *Cook*—Homewood, F. *Crawford*—Flat Rock, A. *Hancock*—Warsaw, F. *Johnson*—Reevesville, F. *Mason*—(Wood). *McLean*—Bloomington, B. *Piatt*—White Heath, D, K. *Union*—Wolf Lake, A.

## ORDER CHIROPTERA, BATS

Allen, Glover M., Bats. Harvard University Press. 1939.

**Myotis lucifugus lucifugus** Le Conte. Little Brown Bat.

*Vespertilio lucifugus* Le Conte, 1831, McMurtrie's Cuvier, Anim. Kingdom, 1:431.

Miller, G. S., Jr., and G. M. Allen, 1928, The American bats of the genera *Myotis* and *Pixonyx*, U. S. Nat. Mus. Bull., 144:43.

*Carroll*—Savanna, I. *Champaign*—Urbana, K, U. *Cook*—Chicago, A, F; Evanston (Gregory); West Northfield, N. *DuPage*—Naperville, A. *Hancock*—Warsaw, N. *Hardin*—Rosiclare (Cory). *Jackson*—Carbon-dale, I, S. *Jo Daviess*—Apple River Canyon St. Park, I. *Kane*—Sugar Grove, A. *Lake*—Waukegan, F. *Macon*—Harristown, N. *Mason*—Havana, I, U. *Ogle*—(Miller and Allen). *Pope*—Golconda, F.

**Myotis grisescens** Howell. Gray Bat.

*Myotis grisescens* Howell, 1909, Biol. Soc. Wash., Proc., 22:46.

Miller and Allen, U. S. Nat. Mus. Bull., 144:105.

*Hardin*—Rosiclare, F.

**Myotis keenii septentrionalis** Trouessart. Big-eared Little Brown Bat.

*Vespertilio gryphus* var. *septentrionalis* Trouessart, 1897, Cat. Mamm. Viv. Foss., p. 131.

Miller and Allen, U. S. Nat. Mus. Bull., 144:105.

*Cook*—Chicago, F, N. *Gallatin*—Equality, S. *Rock Island*—Rock Island, U. *Wabash*—N.

**Myotis sodalis** Miller and Allen. Indiana Bat.

*Myotis sodalis* Miller and Allen, 1928, U. S. Nat. Mus. Bull., 144:130.

Miller and Allen, U. S. Nat. Mus. Bull., 144:130.

*Hardin*—Rosiclare, F.

**Lasionycteris noctivagans** Le Conte. Silver-haired Bat.

*Vespertilio noctivagans* Le Conte, McMurtrie's Cuvier, Anim. Kingdom, 1:431. Seton, E. T., 1909, Life histories of northern animals, Scribner's, 2:1166.

*Champaign*—Urbana, D, K. *Cook*—Chicago, A; Evanston, A, NU; Jackson Park, F; Lincoln Park, A; Palos Park (Cory). *DuPage*—Glen Ellyn, F; Milton Tp. (Gregory). *Ford*—Piper City, K. *Grundy*—Morris, U. *Hancock*—Warsaw, N. *Lake*—A, Beach, F; Highland Park, F. *Richland*—Olney, N. *Whiteside*—Sterling, I.

## ERRATA

Mammals of Illinois, by Walter L. Necker and Donald M. Hatfield  
*Bulletin of the Chicago Academy of Sciences*, vol. 6, 1941, no. 3, p. 17-60.

Through an unfortunate chain of circumstances, this paper failed to include a number of records represented by specimens in the zoological collections of Northwestern University. Dr. Orlando Park, in charge of these collections, has made it possible for me to examine the mammals from Illinois. Such additions or corrections as were found necessary are listed below. Names of counties are printed in italics.

### ORDER CHIROPTERA Family VESPERTILIONIDAE

**Lasionycteris noctivagans** Le Conte.

Add: *Lake County*.

**Lasiurus borealis borealis** Müller.

Add: *Cook*—Evanston.

### ORDER CARNIVORA Family MUSTELIDAE

**Mustela vison letifera** Hollister.

Add: *Cook*—Evanston, Desplaines, Palatine.

**Mephitis mephitis**, ssp.

Add: *DuPage*—Hinsdale.

### ORDER RODENTIA Family SCIURIDAE

**Citellus tridecemlineatus tridecemlineatus** Mitchill.

Add: *Cook*—Chicago, Evanston, La Grange, Orland Park, Palos Park; *DuPage*—Hinsdale; *Henry*—Kewanee; *Peoria*—Peoria; *Tazewell*—Tremont; *Will*—Joliet.

**Citellus franklinii** Sabine.

Delete: *Cook*—Chicago, Evanston, La Grange, Orland Park, Palos Park; *Peoria*—Peoria; *Will*—Joliet.

**Sciurus carolinensis leucotis** Gapper.

Add: *Cook*—Evanston, Wilmette; *DuPage*—Hinsdale.

### Family CRICETIDAE

**Peromyscus leucopus noveboracensis** Fischer.

Add: *Cook*—Deer Grove Park; *DuPage*—Hinsdale; *Kankakee*—Pembroke; *Lake*—Fox Lake, Prairie View.

**Microtus pennsylvanicus pennsylvanicus** Ord.

Add: *Lake*—Fox Lake.

D. M. HATFIELD



**Pipistrellus subflavus subflavus** Cuvier. Georgian Bat.

*Vespertilio subflavus* Cuvier, Mus. Hist. Nat. Paris, Nouv. Ann., 1:17.

Miller, G. S., Jr., 1897, Revision of the North American bats of the family Vespertilionidae, N. Amer. Fauna, 13:90.

Adams—Quincy, I. Alexander—Olive Branch, B, F, N. Champaign—Urbana, K. Coles—Charleston (Cory). Gallatin—Equality, S. Hardin—Rosiclar, F. Jackson—Kincaid Cave, S. Jersey—Grafton, I, K. Johnson—Ozark, F. Pope—Golconda, F. Richland—Olney, B. Union—Alto Pass, U; Anna, F; Lick Creek, B, N.

**Eptesicus fuscus fuscus** Palisot de Beauvois. Big Brown Bat.

*Vespertilio fuscus* Palisot de Beauvois, 1796, Catal. Raisonné Mus. Peale, Phila., p. 18.

Seton, E. T., 1909, Life histories of northern animals, Scribners, 2:1177.

Adams—Quincy, I. Champaign—Champaign, K, U. Cook—Chicago, F. DuPage—Sugar Mound, A. Hancock—Warsaw, B. Jackson—B. Jo Daviess—Galena, I. Kane—Sugar Grove, A, NU. Lake—Lake Bluff, A. Peoria—Peoria, B. Richland—N.

**Lasiurus borealis borealis** Müller. Northern Red Bat.

*Vespertilio borealis* Müller, Natursyst. Suppl., p. 20.

Seton, E. T., 1909, Life histories of northern animals, Scribners, 2:1183.

Alexander—Olive Branch, F. Champaign—Urbana, D, K, U. Cook—Chicago, A, F, N, NU; Evanston, A; La Grange, A; Lincoln Park, A; Maywood, F; Niles Center, F; Willow Springs, F; West Northfield (Miller, 1897). DuPage—Naperville, A; Glen Ellyn (Gregory). Ford—Piper City, K. Hancock—Warsaw, N. Hardin—Rosiclar, F. Jackson—Carbondale, S. Lake—Highland Park, F; Lake Forest, F; Waukegan, N. Marshall—Lacon, R. Richland—Olney, N. Union—Pomona, S. Wabash—Mt. Carmel, N.

**Lasiurus cinereus** Palisot de Beauvois. Hoary Bat.

*Vespertilio cinereus* Palisot de Beauvois, 1796, Catal. Raisonné Mus. Peale, Phila., p. 18.

Seton, E. T., 1909, Life histories of northern animals, Scribners, 2:1191.

Champaign—Urbana, K. Coles—Charleston (Cory). Cook—Chicago, F, M; Flossmoor, F; Maywood, F. DuPage—Wheaton, A. Ford—Piper City, K. Grundy—Morris, U. Hancock—Warsaw, N. Richland—Olney, N. Wabash—N.

**Nycticeius humeralis** Rafinesque. Rafinesque's Bat.

*Vespertilio humeralis* Rafinesque, 1818, Amer. Monthly Mag., 3:445.

Miller, G. S., Jr., Revision of the North American bats of the family Vespertilionidae, N. Amer. Fauna, 13:118.

*Alexander*—Olive Branch, F, N. *Champaign*—Urbana, K, U. *Cook*—Chicago, F. *DuPage*—Sugar Mound, A. *Ford*—Piper City, K. *Hancock*—Warsaw, N. *Wabash*—N.

**Corynorhinus rafinesquii rafinesquii** Lesson. Big-eared Bat.

*Plecotus rafinesquii* Lesson, 1827, Man. de Mamm., p. 96.

Lyon, M. W., Jr., 1936, Mammals of Indiana, Amer. Midl. Nat., 17:85.

*Wabash*—Mt. Carmel, N.

## ORDER CARNIVORA, CARNIVORES

## Family PROCYONIDAE, Raccoons

**Procyon lotor hirtus** Nelson and Goldman. Raccoon.

*Procyon lotor hirtus* Nelson and Goldman, Jour. Mamm., 11:455.

Whitney, L. F., 1931, The raccoon and its hunting, Jour. Mamm., 12:29.

*Alexander*—Olive Branch, F. *Champaign*—(Wood). *Cook*—Evanston, A; Jackson Park, F. *Ford*—Piper City, K. *Hardin*—Rosiclare, F. *Henderson*—N. *Macon*—Decatur, U. *Marshall*—Lacon, R. *St. Clair*—Belleville, N. *Will*—Joliet, F; Lockport, A.

## Family MUSTELIDAE, Weasels

**Mustela rixosa allegheniensis** Rhoads. Least Weasel.

*Putorius allegheniensis* Rhoads, 1901, Acad. Nat. Sci. Phila., Proc., 1900:751.

Seton, E. T., 1929, Lives of game animals, Doubleday Doran, 2:634.

*Cook*—La Grange, A; Niles Center, A; Northfield Tp., F; Wheeling, A. *Lake*—Beach, F; Deerfield, A, F; Grayslake, A; Highland Park, A, G; Waukegan, A; Zion, A. *Lee*—Henkle, I. *McHenry*—Woodstock, G.

**Mustela frenata noveboracensis** Emmons. Long-tailed Weasel.

*Putorius noveboracensis* Emmons, 1840, Rep. Quadrupeds Mass., p. 45.

Hamilton, W. J., Jr., 1933, The weasels of New York, Amer. Midl. Nat., 14:289.

*Champaign*—Seymour, K. *Cook*—Evanston, A; Flossmoor, F; Glencoe, F; Lemont, A; La Grange, G; Niles Center, A; Wheeling, A. *Ford*—Piper City, K. *Lake*—Camp Logan, F; Deerfield, A; Fort Sheridan, F; Highland Park, A; Pistakee Lake, A. *Livingston*—Chatsworth, K. *Marshall*—Lacon, R. *Peoria*—Peoria, M. *Piatt*—White Heath, D. *Pike*—Bloomingdale Spring, F; Milton Spring, F. *Pope*—Golconda, B. *Vermilion*—Catlin, K. *Will*—Joliet, A.

**Mustela vison mink** Peale and Palisot de Beauvois. Eastern Mink.

*Mustela mink* Peale and Palisot de Beauvois, 1796, Cat. Peale Mus., p. 39.

Seton, E. T., 1929, Lives of game animals, 2:518.

*Hancock*—Warsaw, F. *St. Clair*—Belleville, N.

**Mustela vison letifera** Hollister. Mississippi Valley Mink.

*Mustela vison letifera* Hollister, 1913, U. S. Nat. Mus., Proc., 44:475.

Seton, E. T., 1929, Lives of game animals, 2:518.

*Champaign*—Urbana, U. *Cook*—Evanston, A; Oak Park, N; Orland, F. *DuPage*—Addison, Bloomington, and Milton Tps. (Gregory). *Ford*—Piper City, K. *Kane*—Geneva, A. *Lake*—Deerfield, A, F; Grayslake, A. *Marshall*—Lacon, R.

The subspecific status of minks in Illinois needs further clarification.

**Mephitis mephitis minnesotae** Brass. Minnesota Skunk.

*Mephitis minnesotae* Brass, 1911, Aus dem Reiche der Pelze, p. 532.

**Mephitis mephitis avia** Bangs. Illinois Skunk.

*Mephitis avia* Bangs, 1898, Biol. Soc. Wash., Proc., 12:32.

Seton, E. T., 1929, Lives of game animals, 2:309.

*Champaign*—Homer, I; Urbana, U. *Coles*—Charleston (Hankinson). *Cook*—Chicago, B, F; Evanston, B; Oak Park, B. *DuPage*—York Tp. (Gregory). *Ford*—Piper City, K. *Jo Daviess*—Galena, F. *Lake*—Camp Logan, F; Deerfield, A; Highland Park, F; Waukegan, A; Waukegan Flats, A. *McHenry*—Alden, B; Huntley, A. *Piatt*—De Land, K. *Stephenson*—Freeport, N. *Vermilion*—Catlin, U.

The status of the species making up the genus *Mephitis* being somewhat in doubt, so far as Illinois is concerned, we have deemed it best to lump the available records, pending further study.

**Taxidea taxus taxus** Schreber. Badger.

*Ursus taxus* Schreber, 1778, Säugthiere, 3:520.

Seton, E. T., 1929, Lives of game animals, 2:286.

*Cook*—Chicago, F. *DuPage*—Milton (Gregory). *Kankakee*—K. *Lake*—4 mi. NW Barrington, F; Halfday (Gregory). *Lee*—Dixon, I.

## Family CANIDAE, Dogs

**Vulpes fulva** Desmarest. Red Fox.

*Canis fulvus* Desmarest, 1820, Mammalogie, 1:203.

Seton, E. T., 1929, Lives of game animals, 1:469.

*Champaign*—(Wood). *Ford*—Piper City, K. *Will*—Joliet, F; Wilmingon, F. "Southern Illinois," A.

**Urocyon cinereoargenteus cinereoargenteus** Schreber.

Gray Fox.

*Canis cinereo argenteus* Schreber, 1775, Säugthiere, pl. 92.

Seton, E. T., 1929, Lives of game animals, 1:568.

*Alexander*—(Cory). *Champaign*—(Wood). *Christian*—(Cory).  
*Hardin*—(Cory). *Lake*—Deerfield (Gregory). *Menard*—Near Peters-  
 burg, F. *Richland*—Parkersburg, N. *Union*—(Cory). *Wabash*—Mt.  
 Carmel, N.

**Canis latrans latrans** Say. Coyote.*Canis latrans* Say, 1823, Long's Exped. Rocky Mts., 1:168.

Seton, E. T., 1929, Lives of game animals, 1:355.

*Champaign*—(Wood). *Kane*—Geneva (Cory). *Lake*—Halfday (Greg-  
 ory); Lake Forest, A. *Marshall*—9 mi. W. Henry, B; Lacon, R.

## Family FELIDAE, Cats

**Lynx rufus rufus** Schreber. Bobcat.*Felis rufa* Schreber, 1777, Säugthiere, pl. 109b.

Seton, E. T., 1929, Lives of game animals, 1:212.

The inclusion of the bobcat in the fauna of Illinois is based on a  
 supposed recent record from Prairie du Rocher, Randolph County, ver-  
 ification of which we have been unable to obtain. Inasmuch as *Lynx*  
*rufus* occurs in Missouri directly across the Mississippi River it seems  
 reasonable to assume that it also occurs in this state.

## ORDER RODENTIA, RODENTS

## Family SCIURIDAE, Squirrels

**Marmota monax monax** Linnaeus. Woodchuck.*Mus monax* Linnaeus, 1758, Syst. Nat., ed. 10, 1:60.

Hamilton, W. J., Jr., 1934, The life history of the rufescent woodchuck,

*Marmota monax rufescens*, Carnegie Mus., Ann., 23:85-178.

*Champaign*—Urbana, U. *Cook*—Chicago, A; Lemont, A; Willow  
 Springs, F. *DeKalb*—Somonauk, A. *DuPage*—Bloomington and  
 Milton Tps., (Gregory). *Effingham*—Watson, I. *Henry*—Kewanee,  
 U. *Johnson*—Ozark, F. *Kane*—St. Charles, A. *Lake*—Fremont Tp.,  
 A; Fox Lake, F; Lake Forest, F. *Ogle*—Grand Detour, F. *Peoria*—  
 Peoria (Brendel). *Stark*—Toulon, B, I. *Vermilion*—Georgetown, U.  
*Warren*—Gladstone, F.

**Citellus tridecemlineatus tridecemlineatus** Mitchill.

Thirteen-lined Ground Squirrel.

*Sciurus tridecem lineatus* Mitchill, 1821, Med. Repos., (N. S.), 6:248.

Howell, A. H., 1938, Revision of the North American ground squirrels, N. Amer. Fauna, 56:107.

*Carroll*—Mt. Carroll (Allen). *Champaign*—Champaign, K, U. *Cook*—4 mi. N. Bartlett, A; Chicago, A, F, N; Evanston (Allen); Forest Park, A; Forest View, A; Lemont, A; River Forest, A; Worth, F. *Coles*—Charleston (Hankinson). *DuPage*—Bloomington Tp. (Gregory); Glen Ellyn (Gregory). *Ford*—Piper City, K; Roberts, K. *Hancock*—Warsaw, N. *Kane*—Bowes, A. *Lake*—Beach, A, F; Fox Lake, F; Grayslake, A, F. *Marshall*—Lacon, R; Lawn Ridge, M. *Ogle*—(Allen). *Peoria*—Peoria (Allen, Brendel). *Will*—Near Lemont, A; Wheatland Tp., M. *Winnebago*—Fauntandale (Kennicott); Pecatonica, A. *Woodford*—Washburn, I.

**Citellus franklinii** Sabine. Franklin Ground Squirrel.*Arctomys franklinii* Sabine, 1822, Linn. Soc., London, Trans., 13:587.

Howell, A. H., 1938, Revision of the North American ground squirrels, N. Amer. Fauna, 56:133.

*Adams*—Payson (Kennicott). *Carroll*—Mt. Carroll (Allen, Cory). *Champaign*—Champaign, U; Urbana, U. *Coles*—Charleston (Hankinson). *Cook*—Barrington, A; Chicago, NU; Evanston, NU; La Grange, NU; Lemont, A; Orland Park, NU; Palos Park, NU; West Northfield, N; Worth, F. *DuPage*—Bloomington and Milton Tps. (Gregory); Hinsdale, NU. *Ford*—Piper City, K. *Henry*—Kewanee, NU. *Kane*—(Cory). *Lake*—Grayslake, A. *LaSalle*—Vermilion River, N. *Marshall*—Lacon, R; Lawn Ridge (Allen). *Peoria*—Peoria, NU. *St. Clair*—(Cory). *Will*—Joliet, NU; Near Lemont, A; 6 mi. S. Naperville, F; Romeo, A. *Tazewell*—Tremont, NU. *Winnebago*—Pecatonica (Cory, Kennicott).

**Tamias striatus griseus** Mearns. Chipmunk.*Tamias striatus griseus* Mearns, 1891, Amer. Mus. Nat. Hist., Bull., 3:231.

Howell, A. H., 1929, Revision of the American chipmunks, N. Amer. Fauna, 52:20.

*Carroll*—Mt. Carroll (Allen). *Champaign*—Urbana, K. *Cook*—Evanston, A; Northfield Tp. (Gregory, 1930); River Forest, A. *DuPage*—Hinsdale, NU; Milton Tp. (Gregory). *Hancock*—Warsaw, N. *Lake*—Fox Lake, A, F; Highland Park, A; Pistakee Bay, F. *Marshall*—Lacon, R. *Peoria*—Peoria (Brendel). *Piatt*—White Heath (Koestner). *Sangamon*—Sherman, I. *Vermilion*—Oakwood, I. *Wabash*—Mt. Carmel, N. *Will*—Romeo, A.

**Tamiasciurus hudsonicus loquax** Bangs. Red Squirrel.

*Sciurus hudsonicus loquax* Bangs, 1896, Biol. Soc. Wash., Proc., 10:161.

Hatt, R. T., 1929, The red squirrel, Roosevelt Wildlife Ann., 2:1-146.

*Iroquois*—Onarga (Wood). *Lake*—Lake Forest, F; Fox Lake (Cory).

*Marshall*—Lawn Ridge (Allen). *Putnam*—Hennepin (Kennicott).

**Sciurus carolinensis carolinensis** Gmelin. Southern Gray Squirrel.

*Sciurus carolinensis* Gmelin, 1788, Syst. Nat., 1:148.

Seton, E. T., 1929, Lives of game animals, 4:9.

*Alexander*—Olive Branch, B, F. *Johnson*—Belknap, S. *Pulaski*—Ullin, G. *Richland*—Parkersburg, N. *Union*—(Allen, as *leucotis*).

**Sciurus carolinensis leucotis** Gapper. Northern Gray Squirrel.

*Sciurus leucotis* Gapper, 1830, Zool. Jour., 5:206.

Seton, E. T., 1929, Lives of game animals, 4:9.

*Carroll*—Mt. Carroll (Allen). *Champaign*—(Wood). *Cook*—Chicago, A; Glencoe, A; Lincoln Park, A; Palos Park, A; West Northfield, N. *DuPage*—Glen Ellyn, A. *Jasper*—Newton, U. *Lake*—Deerfield, A; Highland Park, A, F; Lake Forest, A, F. *Marshall*—Lacon, R. *Peoria*—Peoria (Brendel). *Rock Island*—Milan, I.

**Sciurus niger rufiventer** Geoffroy. Fox Squirrel.

*Sciurus rufiventer* Geoffroy, 1803, Cat. Mamm. Mus. Hist. Nat., Paris, p. 176.

Seton, E. T., 1929, Lives of game animals, 4:82.

*Boone*—Belvedere, A. *Carroll*—Mt. Carroll (Allen). *Champaign*—Champaign, K; Urbana, D, U. *Cook*—Bartlett, A; Berwyn, A; Chicago, F; Chicago Heights, F; Deer Grove, NU; Palos Park, A; West Northfield (Allen). *Cumberland*—Neoga, U. *DuPage*—Milton Tp. (Gregory). *Ford*—Piper City, K. *Hancock*—Warsaw, F, N. *Henry*—Geneseo, F. *Lake*—Antioch, A; Deerfield, A; Fox Lake, F; Fremont (Allen); Grayslake, A; Highland Park, A; Lake Forest, F. *Lawrence*—Jackson (Allen). *McHenry*—Greenwood, A; Woodstock, F. *Marshall*—Lacon, R. *Ogle*—Marion (Allen); Mt. Morris, F. *Peoria*—Peoria, N. *Piatt*—Monticello, A; White Heath, K. *Richland*—Parkersburg, N. *Wabash*—Mt. Carmel, N. *Williamson*—Near Hurst, S.

**Glaucomys volans volans** Linnaeus. Flying Squirrel.

*Mus volans* Linnaeus, 1758, Syst. Nat., ed. 10, 1:63.

Sollberger, D. E., 1940, Notes on the life history of the small eastern flying squirrel, Jour. Mamm., 21:282.

*Alexander*—Olive Branch, F. *Carroll*—Thomson, K. *Champaign*—(Wood). *Cook*—Chicago, N; Evanston, A; West Northfield, M; Willow Springs, F. *DuPage*—Bloomingtondale (Gregory). *Hancock*—Warsaw, F, N. *Jackson*—Carbondale, S. *Kane*—Geneva, NU; St. Charles, A. *Kankakee*—Pembroke Tp., A. *Lake*—Deerfield, A, F; Halfday, A; Highland Park, F; Lake Forest, A; Waukegan, A. *LaSalle*—Starved Rock, I. *Marshall*—Lacon, R; Lawn Ridge (Allen). *Mason*—Havana, A. *Peoria*—Peoria (Allen, Brendel). *Piatt*—White Heath, D, K, U. *Pope*—Golconda, F. *Pulaski*—Wetaug, A. *Richland*—Olney, B, N; Parkersburg, N. *Rock Island*—Moline (Fryxell, 1936). *St. Clair*—Belleville, N.

## Family GEOMYIDAE, Pocket Gophers

**Geomys bursarius illinoensis** Komarek and Spencer. Illinois Pocket Gopher.

*Geomys bursarius illinoensis* Komarek and Spencer, 1931, Jour. Mamm., 12:405.

Wight, H. M., 1918, The life history and control of the pocket gopher in the Willamette Valley, Oregon Agri. Coll. Exp. Sta. Bull. 153.

*DeWitt*—Clinton, N. *Kankakee*—Aroma Park, F; Bonfield, F; Hopkins Park, A, G; Mornence, A; Pembroke Tp., F; St. Anne, A. *LaSalle*—Oglesby, A; Ottawa, A; Utica, A. *Marshall*—Lacon, A, F, R. *Mason*—Havana, B; San Jose, F. *Tazewell*—Tremont, N. *Will*—Custer Park, A. *Woodford*—Kappa, I.

## Family CASTORIDAE, Beavers

**Castor canadensis** Kuhl. Beaver.

*Castor canadensis* Kuhl, 1820, Beitr. Zool., p. 64.

Bradt, G. W., 1938, A study of beaver colonies in Michigan, Jour. Mamm., 19:139.

The beaver was exterminated in the state and has recently been reintroduced.

## Family CRICETIDAE, New World Rats and Mice

**Peromyscus maniculatus bairdii** Hoy and Kennicott. Prairie  
White-footed Mouse.

*Mus bairdii* Hoy and Kennicott, 1857, U. S. Patent Off. Rep., (agri.) 1856:92.

Osgood, W. H., 1909, Revision of the mice of the American genus *Peromyscus*, N. Amer. Fauna, 28:79.

*Alexander*—McClure, B; Olive Branch, B, F. *Champaign*—Seymour, K; Urbana, M. *Coles*—Charleston (Hankinson). *Cook*—Calumet City, A; Chicago, F; Forest View, A; Lemont, A; River Forest, A; West Northfield, M, N. *DuPage*—Bloomington Tp. (Gregory). *Edgar*—Kansas, B. *Ford*—Piper City, K. *Jersey*—Riehl Sta., B. *Johnson*—Reevesville, F. *Lake*—Beach, A, F; Fox Lake, F; Fremont (Coues); Highland Park, MVZ; Ravinia, MVZ; Waukegan, A. *McLean*—Bloomington (Kennicott). *Marion*—Salem, I. *Piatt*—K. *Richland*—Parkersburg, B, N. *Rock Island*—6 mi. E. Cordova, G. *Vermilion*—Hoopeston, A.

**Peromyscus leucopus leucopus** Rafinesque. Southern Woodland  
White-footed Mouse.

*Musculus leucopus* Rafinesque, 1818, Amer. Monthly Mag., 3:446.

Osgood, W. H., 1909, Revision of the mice of the American genus *Peromyscus*, N. Amer. Fauna, 28:113.

*Alexander*—Cypress Jct., McClure, B; Horseshoe Lake, U; Olive Branch, F, U; Wolf Lake, A. *Crawford*—Flat Rock, A. *Gallatin*—Shawneetown, B. *Johnson*—Reevesville, B, F; Ozark, F. *Massac*—Metropolis, A. *Pope*—Golconda, B, F. *Pulaski*—Wetaug, A. *Union*—Alto Pass, U.

**Peromyscus leucopus noveboracensis** Fischer.

Northern Woodland White-footed Mouse.

*Mus sylvaticus noveboracensis* Fischer, 1829, Syn. Mamm., p. 318.

Nicholson, A. J., 1941, The homes and social habits of the wood mouse (*Peromyscus leucopus noveboracensis*) in Southern Michigan, Amer. Midl. Nat., 25:196.

*Adams*—Quincy, I. *Calhoun*—Brussels, I. *Champaign*—Urbana, K, U. *Coles*—Charleston (Hankinson). *Cook*—Bartlett, A; Calumet City, A; Elk Grove, A; Glencoe, A; Lemont, A; Maywood, A; Northfield Tp. (Gregory, 1928); Palos Park, A; Prairie View, A; River Forest, A; West Northfield (Coues, Osgood). *De Kalb*—Somonauk, A. *DuPage*—Glen Ellyn (Gregory); Naperville, A. *Fayette*—Hagarstown, I. *Ford*



—Piper City, K. *Hancock*—Warsaw, N. *Henderson*—N. *Henry*—Geneseo, U. *Jersey*—Riehl Sta., B. *Jo Daviess*—Galena, F. *Kane*—Bowes, A. *Kankakee*—Aroma Park, K; Hopkins Park, A; Near St. Anne, A, K. *Lake*—Beach, A; Camp Logan, F; Deerfield, A, F; Pistakee Bay, F. *Marshall*—Lacon, R. *Ogle*—Polo, A. *Piatt*—Monticello, A; White Heath, D, K, U. *Richland*—Olney, B; Parkersburg, B. *Vermilion*—Catlin, U. *Will*—New Lenox, A, F.

Studies of the intergradation of the two subspecies of *Peromyscus leucopus* are needed.

### ***Peromyscus gossypinus megacephalus* Rhoads. Cotton Mouse.**

*Sitomys megacephalus* Rhoads, 1894, Acad. Nat. Sci. Phila., Proc., 1894:254.  
Osgood, W. H., 1909, Revision of the mice of the American genus *Peromyscus*, N. Amer. Fauna, 28:135.

*Alexander*—Olive Branch, F. *Johnson*—Ozark, F. *Pope*—Golconda, F. *Pulaski*—Wetaug, A.

### ***Peromyscus nuttalli aureolus* Audubon and Bachman. Southern Golden Mouse.**

*Mus (Calomys) aureolus* Audubon and Bachman, 1841, Acad. Nat. Sci. Phila., Proc., 1:98.  
Osgood, W. H., 1909, Revision of the mice of the American genus *Peromyscus*, N. Amer. Fauna, 28:224.

*Alexander*—Cairo (Coues); Olive Branch, B, F. *Jackson*—(Wood). *Marion*—(Wood).

### ***Oryzomys palustris palustris* Harlan. Swamp Rice Rat.**

*Mus palustris* Harlan, 1837, Amer. Jour. Sci., 31:385.  
Goldman, E. A., 1918, The rice rats of North America, N. Amer. Fauna, 42:22.

*Alexander*—Cache, I; Olive Branch, N, F.

### ***Neotoma floridana illinoensis* Howell. Illinois Wood Rat.**

*Neotoma floridana illinoensis* Howell, 1910, Biol. Soc. Wash., Proc., 23:28.  
Poole, E. L., 1940, A life history sketch of the Allegheny woodrat, Jour. Mamm., 21:249.

*Union*—Aldridge, I; Wolf Lake, A, B, F, P (type locality of the subspecies).

**Synaptomys cooperi gossii** Coues. Goss' Lemming Mouse.

*Arvicola (Synaptomys) gossii* Coues, 1877, Monog. N. Amer. Rodentia, p. 235.  
 Howell, A. B., 1927, Revision of the American lemming mice, N. Amer. Fauna, 50:18.

*Champaign*—Seymour, K; Urbana (Cory, Wood). *Crawford*—Flat Rock, A. *Hardin*—Rosiclare, F.

**Synaptomys cooperi stonei** Rhoads. Stone's Lemming Mouse.

*Synaptomys stonei* Rhoads, 1893, Amer. Nat., 27:53.  
 Howell, A. B., 1927, Revision of the American lemming mice, N. Amer. Fauna, 50:14.

*Vermilion*—Danville, F.

**Microtus pennsylvanicus pennsylvanicus** Ord. Eastern Meadow Mouse.

*Mus pennsylvanica* Ord, 1815, Guthrie's Geography, 2nd Amer. ed., 2:292.  
 Hatt, R. T., 1930, The biology of the voles of New York, Roosevelt Wildlife Bull., 5:514.

*Cass*—B. *Coles*—Charleston (Hankinson). *Cook*—Argo, F; Barrington, A; Chicago, F; Deer Grove, NU; Elk Grove, A; Elmwood Park, A; Evanston, NU; Glencoe, A; Indian Hill, G; Lambert, F; Lemont, A; Mt. Clair, A; Niles Center, A; Northfield Tp., G; Oak Park, A, NU; Palos Park, A; River Forest, A; West Northfield, A, N; Wheeling, NU. *DeKalb*—Somonauk, A. *DuPage*—Glen Ellyn (Gregory). *Jo Daviess*—Galena, F. *Lake*—Beach, A, NU; Camp Logan, F; Deerfield, A; Fox Lake, F; Highland Park, A, MVZ; Pistakee Bay, F; Prairie View, A. *McHenry*—(Wood). *McLean*—Normal (Wood). *Vermilion*—Muncie, I, N. *Will*—New Lenox, A.

**Microtus ochrogaster** Wagner. Prairie Meadow Mouse.

*Hypudaeus ochrogaster* Wagner, 1842, Schreber's Säugethiere, Suppl., 3:592.  
 Bailey, V., 1900, Revision of American voles of the genus *Microtus*, N. Amer. Fauna, 17:73 (as *austerus*).

*Adams*—Quincy, I. *Alexander*—McClure, B; Olive Branch, B, F. *Champaign*—Champaign, K; Seymour, D, K, U; Urbana, M. *Cook*—Lemont, A; Northfield, P; West Northfield, M. *Crawford*—Flat Rock, A. *DuPage*—Glen Ellyn (Gregory). *Edgar*—Kansas, B. *Ford*—Piper City, K. *Hancock*—Warsaw (Bailey, 1900). *Hardin*—Rosiclare, F. *Jo Daviess*—Ozark, F; Reevesville, F. *Kankakee*—Aroma Park, K. *Lake*—Beach, F; Fox Lake, F; Gilmer (Gregory). *Marion*—Odin, B. *Massac*—Metropolis, A. *Pope*—Golconda, F. *Pulaski*—Wetaug,

A. *Richland*—Olney, B. *Union*—Wolf Lake, A, B. *Vermilion*—Rankin, I; Danville, U. *Will*—New Lenox, A.

**Pitymys pinetorum scalopsoides** Audubon and Bachman. Northern Pine Mouse.

*Arvicola scalopsoides* Audubon and Bachman, 1841, Acad. Nat. Sci. Phila., Proc., 1:97.

Hamilton, W. J., Jr., 1938, Life history notes on the northern pine mouse, Jour. Mamm., 19:163.

*Champaign*—Brownfield Woods, F; Urbana, K. *Cook*—Elk Grove, A; Lemont, A; Orland Park, A; Palos Park, A; West Northfield, N. *Crawford*—Flat Rock, A. *DeKalb*—Somonauk, A. *DuPage*—Downer's Grove, F. *Hancock*—Warsaw, N. *Jackson*—Carbondale, S. *Lake*—Highland Park, F. *Massac*—Metropolis, A. *Piatt*—White Heath, D, K. *Union*—Alto Pass, U; Wolf Lake, A. *Will*—New Lenox, A.

**Pitymys pinetorum auricularis** Bailey. Southern Pine Mouse.

*Microtus pinetorum auricularis* Bailey, 1898, Biol. Soc. Wash., Proc., 12:90.

*Alexander*—Olive Branch, F. *Hardin*—Rosiclare, F. *Johnson*—Reevesville, F.

**Ondatra zibethicus zibethicus** Linnaeus. Muskrat.

*Castor zibethicus* Linnaeus, 1766, Syst. Nat., ed. 12, 1:79.

Johnson, C. E., 1925, The muskrat in New York, Roosevelt Wildlife Bull., 3:199.

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Family MURIDAE, Old World Rats and Mice

**Rattus rattus rattus** Linnaeus. Black Rat.

**Rattus norvegicus** Erxleben. Norway Rat.

**Mus musculus musculus** Linnaeus. House Mouse.

The above three species are all imported and apt to be found wherever man is. The black rat occurs to the south and the Norway rat to the north.

## Family ZAPODIDAE, Jumping Mice

**Zapus hudsonius hudsonius** Zimmermann. Jumping Mouse.

*Dipus hudsonius* Zimmermann, 1780, Geog. Gesch., 2:358.

Hamilton, W. J., Jr., 1935, Habits of jumping mice, Amer. Midl. Nat., 16:187.

*Cook*—West Northfield (Coues, 1877). *Jackson*—Carbondale, S. *Jo Daviess*—Near Galena, F. *Kane*—Sugar Grove, A. *Lake*—Deerfield (Gregory); Fox Lake, F. *Marshall*—Lacon, R.

## Family ERETHIZONTIDAE, Porcupines

**Erethizon dorsatum dorsatum** Linnaeus. Canada Porcupine.

*Hystrix dorsata* Linnaeus, 1758, Syst. Nat., ed. 10, 1:57.

We agree with Mr. Davis that the specimen recorded by him from Illinois (1933) is most likely an escape. We do not consider the species to be a member of the Illinois fauna at the present time.

## ORDER LAGOMORPHA, RABBITS

## Family LEPORIDAE, Rabbits

**Sylvilagus floridanus mearnsii** Allen. Mearns Cottontail Rabbit.

*Lepus sylvaticus mearnsii* Allen, 1894, Amer. Mus. Nat. Hist., Bull., 6:171.

Allen, D. L., 1939, Michigan cottontails in winter, Jour. Wildlife Management, 3:307. Hendrickson, G. O., 1936, Summer studies of the cottontail rabbit, Iowa State College Jour. Sci., 10:367.

*Champaign*—Urbana, U. *Coles*—Charleston (Hankinson). *Cook*—Chicago, F; Evanston, NU; Lemont, A; Morton Grove, NU; Northfield Tp. (Gregory, 1930); Orland Park, A; River Forest (Gregory). *DuPage*—Glen Ellyn (Gregory). *Ford*—Piper City, K. *Lake*—Camp Logan, F; Deerfield, A; Fox Lake, F; Highland Park, MVZ; Lake Forest, MVZ; Volo, A; Waukegan (Nelson). *McHenry*—Woodstock (Nelson). *Ogle*—Polo, A. *Piatt*—Monticello, A. *Sangamon*—Sangamon, N. *Vermilion*—Catlin, U.

**Sylvilagus floridanus alacer** Bangs. Southern Cottontail Rabbit.

*Lepus sylvaticus alacer* Bangs, 1896, Biol. Soc. Wash., Proc., 10:136.

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*Alexander*—Olive Branch, F. *Johnson*—Ozark, F; Reevesville, F. *Pope*—Golconda, F.

**Sylvilagus aquaticus aquaticus** Bachman. Swamp Rabbit.

*Lepus aquaticus* Bachman, 1837, Acad. Nat. Sci. Phila., Jour., 7:319.

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